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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SALMON, KATHERINE D	

ART UNIT	PAPER NUMBER
1634	

MAIL DATE	DELIVERY MODE
10/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/474,435	CAO ET AL.	
	Examiner	Art Unit	
	KATHERINE SALMON	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,6,12-14,19-21,24-26 and 60-63* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,6,12-14,19-21,24-26 and 60-63* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/21/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/26/2008 has been entered.

2. Currently Claims 2, 6, 12-14, 19-21, 24-26, 60-63 are pending. Claims 3-5, 7-11, 15-18, 22-23, 27-59 are cancelled. For Claims 19-21, 24-26, and 62-63 the claims are drawn to two distinct species (transformed plant cell and transformed plant) which were previously under an election of species (restriction requirement 3/20/2007 p. 4). Applicant elected with traverse the plant cell species (response to restriction 4/20/2007 p. 9). The restriction requirement was made final in the nonfinal office action (7/11/2007).

3. The following rejections for Claims 2, 6, 12-14, 19-21, 24-26, 60-63 are newly applied as necessitated by amendment or reiterated. Response to arguments follows.

Interview Summary

4. The interview summary presented in the reply of 8/21/2008 is acknowledged. It is noted that though specific and substantial utility for SEQ ID No. 5272 in priority

documents was discussed, it was noted that such evidence if presented would have to be considered before making a decision on utility (p. 2 2nd paragraph).

Withdrawn Objections and Rejections

5. The objection to Claims 32-38 made in section 8 of the previous office action is moot due to the cancellation of the claims.

6. The rejection of the claims under 35 USC 112/Written Description made in section 10 of the previous office is moot based upon the amendments to the claims.

7. The rejection of the claims under 35 USC 102(b) as anticipated by Brennan (US Patent 5474796 December 12, 1995) made in section 12 of the previous office action is moot based upon the amendments to the claims.

8. The rejection of the claims under 35 USC 102(a) as anticipated by GenBank Accession Number AP000604 (NCBI website October 15, 1999) made in section 13 of the previous office action is moot based upon the priority date of 9/23/1999.

Claim Rejections - 35 USC § 112

9. Claims 2, 6, 12-14, 19-21, 24-26, 60-63 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 6, 12-14, 19-21, 24-26, 60-63 recite the limitation “comprising from about 30 to 300”. It is vague and indefinite what is meant by the phrase “comprising from about 30 to 300”. The phrase typically indicates a minimum point. The phrase,

however, is contraverted by the term "about" which implies that values above and below 30 nucleotides are permitted. In Amgen, Inc. v. Chugai Pharmaceutical Co., 927 F.2d.1200 (CAFC 1991), the CAFC stated, "The district court held claims 4 and 6 of the patent invalid because their specific activity limitation of "at least about 160,000" was indefinite". After review, the CAFC states "We therefore affirm the district court's determination on this issue." Thus, the CAFC found the phrase "at least about" indefinite where the metes and bounds of the term were not defined in the specification.

Claim Rejections - 35 USC § 101 and 35 USC § 112, first paragraph

The 35 USC 101 and 35 USC 112/First paragraph set forth below is a reiteration of the rejection set forth in the final rejection mailed 3/18/2008, response to arguments follows.

10. Claim 2, 6, 12-14, 19-21, 24-26, 60-63 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible asserted utility or a well established utility.

Claims 2, 6, 12-14, 19-21, 24-26, 60-63 also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a well asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 2, 6-8, 12-14, 1-21, 24-26, 32-38, and 60-61 are rejected under 35 U.S.C. 101 because the claimed invention lacks a credible, substantial, specific or well-established utility.

The claims are drawn to a substantially purified nucleic acid molecules having the sequence of SEQ ID No. 5272, substantially purified nucleic acid molecules comprising fragments of about 30 to 300 nucleotides of SEQ ID No. 5272 and to substantially purified nucleic acid comprising a nucleic acid sequence having at least 98% identity to SEQ ID NO. 5272.

The claimed nucleic acids are not supported by either a specific and substantial asserted utility or a well-established utility.

The specification discloses nucleic acid contig and singleton sequences consisting of SEQ ID Nos 1 to 81,306 were isolated from a library prepared from Arabidopsis thaliana ecotype Landsberg erecta tissue (p. 3 lines 17-25 and Example 1). The present claims are limited to nucleic acid comprising SEQ ID NO. 5272 or fragments of SEQ ID NO. 5272 having 98 or 100% identity with SEQ ID No. 5272. The specification does not state whether nucleic acid molecule of SEQ ID NO. 5272 constitutes a complete open reading frame and does not identify the location of the start and stop codons.

The specification also does not set forth a particular biological activity of SEQ ID No. 5272 nor does it describe any protein encoded by SEQ ID No. 5272. Therefore the specification has not established any specific function for SEQ ID No. 5272. Further, there has been no specific use for SEQ ID NO. 5272, The specification asserts the

claimed nucleic acids can be used to determine transcriptional profiling to find, identify, and characterize counterpart gene in other species (p. 2 lines 10-15). However, such uses lack a specific and substantial utility. Such uses allow only for the identification and analysis of other nucleic acids. Because a utility has not been established for the present nucleic acid, the use of this nucleic acid to search for additional nucleic acids does not constitute a "real world" context of use.

The specification further contemplates that the nucleic acid of SEQ ID NO. 5272 can be used for mapping studies, linkage analysis, constructing transgenic plants, and screening for traits or screening for polymorphisms (p. 2-3 and 17-18). However, these uses are applicable to a broad class of molecules since all plant nucleic acids could be used for these purposes. Thereby, these uses are general and do not constitute a specific utility. While the use of the nucleic acid of SEQ ID No. 5272 in the disclosed methods may eventually lead one to the identification of useful traits or specific polymorphisms or may eventually allow for the generation of transgenic plants, such uses constitute further research and experimentation and do not provide a readily-available, specific and substantial real-world use.

The specification also suggests that the proteins encoded by the claimed nucleic acids could be used to generate antibodies, which could be used for detection purposes (p. 16-17). Again, because a utility has not been established for the nucleic acid or the protein encoded thereby, use of the protein to generate antibodies to isolate and study proteins constitutes a research project and does not provide a specific and substantial utility.

The specification further contemplates that the nucleic acid of SEQ ID NO. 5272 can be used for identifying markers and isolate promoters associated with proteins encoded by SEQ ID No. 5272 (15-16). The utility is not specific because it is a property of all plant nucleic acids that they could be used to search for and try to identify a polymorphism or promoter. Further, the asserted utility is not substantial because it is a utility that is performed only to accomplish additional research. As stated in Brenner v. Manson, 383 U.S. 519, 148 USPQ 689 (1966), an invention does not have utility sufficient to satisfy §101 until it is "refined and developed" to the point of providing a specific benefit in currently available form. Id at 534-35, 148 USPQ at 695. In the instant application, Applicants have not set forth a single promoter or marker, which has been identified using the claimed SEQ ID NO: 5272.

All discussions regarding polymorphisms/markers in the specification are generic in nature. There is no showing of a reasonable expectation that the claimed nucleic acids could in fact be used to identify a specific promoter or marker. Even if a marker could be identified using the claimed SEQ ID NO: 5272, the specification has not disclosed a specific and substantial use for such an uncharacterized marker. The specification does not disclose an association between any particular polymorphisms and any phenotypic trait. Polymorphisms are naturally occurring variations within sequences, which themselves may not have any meaningful use. To determine whether a nucleic acid contains a polymorphism would first require comparing the sequence of SEQ ID NO: 5272 to other newly isolated nucleic acids. Then, upon identifying a nucleic acid variation, one would need to determine whether such a variation had any

meaningful use – e.g., whether the variation was associated with a particular trait or characteristic of a particular strain of plant. Therefore, the nucleic acids of SEQ ID NO: 5272 may only be used to search for polymorphisms and if such polymorphisms are identified then the functional/biological activities of the polymorphisms could potentially be elucidated. Such research projects do not constitute a "real-world" use in currently available form.

The specification asserts that the nucleic acids may also be used as markers and probes; to identify and obtain nucleic acid homologues, in microarray as gene-specific targets; for transformation of plants; to determine the level or expression of a protein or mRNA; to overexpress or suppress a desired protein. However, these utilities are all generic and are characteristic of all nucleic acids. Such uses do not constitute a specific utility. As with the use of a nucleic acid to detect polymorphisms, a substantial utility for the nucleic acid can only be elucidated once the function of the nucleic acid or the product encoded by the nucleic acid is determined.

The present specification does not teach a specific functional or biological activity associated with the nucleic acid of SEQ ID NO: 5272 or a protein encoded by SEQ ID NO: 5272 or an association between the claimed nucleic acids and any particular condition in plants. In the absence of such information, the skilled artisan would not know how to interpret the results of methods which determine the expression of an mRNA or protein and would not know how to use a plant that was transformed with the claimed nucleic acids. Additionally, the use of the claimed nucleic acids as a probe to detect itself does not constitute a specific utility because the result of such a use would

be meaningless without additional information regarding the significance of the nucleic acid.

The use of the claimed nucleic acids to detect homologues in other plants and organisms such as alfalfa and barley (p. 21) is also not a substantial and specific utility. Since the functional activity of the presently claimed nucleic acids is unknown, and the functional activity of any putative homologues is unknown, the detection of such homologues does not provide an immediate benefit and serves only as a starting point for further research. In addition, the use of a nucleic acid in a microarray does not confer a patentable utility since all nucleic acids may be used in microarrays. Each of these asserted utilities are generic, rather than specific. Use of the claimed nucleic acids in the above manners would not be meaningful in the absence of information regarding the specific biological activity or significance of these nucleic acids.

The U.S. Court of Appeals for the Federal Circuit recently addressed the utility requirement as it applies to nucleic acids. See In re Fisher 421 F.3d 1356, 76 USPQ2d 1225 (Fed. Cir. 2005). The Court held that 35 USC 101 requires a showing that a nucleic acid is both substantial and specific, stating that "not every 'use' that can be asserted will be sufficient to satisfy §101. " The court emphasized that disclosing a substantial utility means "show[ing] that an invention is useful to the public as disclosed in its current form, not that it may be useful at some further date after further research. Simply put, to satisfy the 'substantial' utility requirement, an asserted use must show that claimed invention has a significant and presently available benefit to the public." Id. 76 USPQ2d at 1230.

The Fisher Court also held that none of the uses asserted by Applicants in that case were either substantial or specific because each of the "asserted uses represent merely hypothetical possibilities, objectives which the claimed ESTs, or any EST for that matter, could possibly achieve, but none for which they have been used in the real world." The Court concluded that "granting a patent to Fisher for its five claimed ESTs would amount to a hunting license because the claimed ESTs can be used only to gain further information about the underlying genes and the proteins encoded for by those genes. The claimed ESTs themselves are not an end of Fisher's research effort, but only tools to be used along the way in the search for a practical utility."

The instant situation is analogous to that which was addressed in Fisher. In the present case, Applicants have not established that the claimed nucleic acid encodes for a protein with a specific and substantial biological activity, or that the nucleic acid or protein could be used to identify a particular trait or to detect a particular polymorphism or promoter of known function. Accordingly, the claimed invention is not supported by either a specific or substantial asserted utility or a well-established utility. Applicant is directed to the Utility Examination Guidelines, Federal Register, Vol. 66, No. 4, pages 1092-1099, Friday January 5, 2001.

Claim Rejections - 35 USC § 112/Enablemenet

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact

> terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2, 6-8, 12-14, 1-21, 24-26, 32-38, and 60-61 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art would not know how to use the claimed invention.

Response to Arguments

The reply traverses the rejection. A summary of the arguments presented in the reply is set forth below with response to arguments following.

(A) The reply summarizes the previous office action (p. 9 last paragraph) asserts the general use of mapping studies, linkage analysis, constructing transgenic plants, and screening for traits or screening for polymorphism are specific uses of SEQ ID No. 5272 and are not generally applicable to any sequence (p. 10 1st paragraph).

These arguments have been fully reviewed but have not been found persuasive.

The instant specification does not contemplate the specific use of SEQ ID No. 5272 for any mapping studies, linkage analysis, constructing transgenic plants, and screening for traits or screening for polymorphism, but rather contemplates that any

nucleic acid sequence of Arabidopsis thaliana can be used to perform such general uses (p. 2-3 of the instant specification). In this instant case the specification contemplates over 195,000 sequences from the Arabidopsis thaliana genome, but does not indicate which sequences could be used in any specific use. Moreover, the Court held that 35 USC 101 requires a showing that a nucleic acid is both substantial and specific, stating that "not every 'use' that can be asserted will be sufficient to satisfy §101. " The court emphasized that disclosing a substantial utility means "show[ing] that an invention is useful to the public as disclosed in its current form, not that it may be useful at some further date after further research. Simply put, to satisfy the 'substantial' utility requirement, an asserted use must show that claimed invention has a significant and presently available benefit to the public." Id. 76 USPQ2d at 1230.

As such the instantly claimed SEQ ID No. 5272 could be used in a number of general methodologies however, at the time of filing; there was no indication of a substantial utility for the sequence because there has been no contemplation of a specific useful trait for SEQ ID No. 5272. In the instant case, the specification asserts that generally nucleic acids of the Arabidopsis genome could be used in yield studies or regulatory functions; however, the instant specification has not specified a particular function of SEQ ID No. 5272. Further the instant specification has not provided any functional or biological attributes that are specifically observed for SEQ ID No. 5272.

(B) The reply asserts that SEQ ID NO. 5272 can act as regulatory elements and genes and points to p. 1 lines 19-26 (p. 10 1st full paragraph). The reply points to p. 2

lines 17-21 for specific uses such as sequences to alter yield (p. 10 1st full paragraph). The reply asserts that these stated utilities must be accepted in the absence of evidence or sound scientific reasoning to rebut applicant's assertion (p. 10 1st full paragraph).

These arguments have been fully reviewed but have not been found persuasive.

Again, the instant specification does not describe specifically that SEQ ID No. 5272 can act as regulatory elements or used to alter yields, but that in general nucleic acids obtained by from the Arabidopsis thaliana genome could be useful for such determinations. As such the instant specification does not provide a specific and substantial use, but rather general potential uses for any plant gene.

(C) The reply asserts that US provisional Application 60/155422 discloses SEQ ID No. 9911 (which is 100% homologous to SEQ ID No. 5272) as being a COL2 gene (p. 10 2nd full paragraph).

The reply asserts that that it is shown in the art that COL2 is "CONSTANS-like" and shows significant homology to CONSTANS (p. 10 last paragraph). The reply asserts that CONSTANS has been identified as a putative zinc finger transcription factor affecting flowering growth (p. 10 last paragraph).

These arguments have been fully reviewed but have not been found persuasive.

The reply points to the description of SEQ ID No. 9911 in US provisional application 60/155422 for a disclosed use for SEQ ID No. 5272. However, SEQ ID No. 9911 is listed as being 34% identical to COL2 (Attachment D). Neither the instant

specification nor the provisional specification provides any information about which nucleotides are similar between SEQ ID No. 5272 and COL2, the critical domains to retain the functionality of COL2, nor rather SEQ ID No. 5272 and COL2 share similar nucleotides at the putative zinc finger transcription factor site. Therefore, though this is a general indication of a potential utility for SEQ ID No. 5272, it is not specific nor substantial because the instant specification has provided no evidence that the structural similarities between the two sequences is correlative to similar functions.

(D) The reply asserts that since filing additional evidence demonstrates the specific and substantial utility of SEQ ID No. 5272 (p. 11 1st full paragraph). The reply points to application 2008/0010703 and asserts that G1988 differs by on nucleotide from the corresponding region of SEQ ID No. 5272 (p. 11 1-2nd full paragraph). The reply asserts that therefore G1988 encodes the identical protein as the corresponding region of SEQ ID No. 5272 (p. 11 2nd full paragraph). The reply asserts that G1988 has been demonstrated to increase yield in plants (p. 11 2nd full paragraph).

These arguments have been fully reviewed but have not been found persuasive.

As discussed in the rejection above, though SEQ ID NO. 5272 might have a use after filing by the further experimentation of G1988; this use was not specifically contemplated in the instant specification. In order to reach the utility requirement the claim must be useful in the form presented at the time of filing and not after further post filing experimentation. Here, in this instant case, the specification provides no specific contemplation of a use to increase yield in plants nor any specific structure/function

discussion for correlation to a protein which is association with increased yield production. As such the instantly claimed invention is still rejected under 35 USC 101.

(E) The reply asserts that because there is utility of the claimed invention the invention is therefore enabled (p. 12 3rd paragraph).

This argument has been fully reviewed but has not been found persuasive.

As indicated above, the instantly claimed invention still has not overcome the issues concerning specific and substantial utility and as such both the 35 USC 101 rejection and the 35 USC 112/Enablement rejections have been maintained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

11. Claims 2 and 60-61 are rejected under 35 U.S.C. 102(e) as being anticipated by Moyer et al. (US Patent Application Publication US2005/0014263 1/20/2005 filing date of 5/29/1998).

With regard to Claims 2,60, and 61, the phrase “about 30 to 200 nucleotide residues of the nucleic acid sequence of SEQ ID No. 5272" can be interpreted broadly to encompass any sequence which has at least 30 nucleotides in common with SEQ ID No. 5272. The claim is not limited to the nucleotide residues being contiguous. Further, the phrase “of the Arabidopsis thaliana genome” is not being given any patentable weight and as such any nucleic acid molecule comprising from about 30 to 200 nucleotide resides of the nucleic acid sequence of SEQ ID No. 5272 would encompass all the structural limitations of the claim. Moyer et al. teaches a sequence which has at least 30 nucleotides in common and therefore teaches all the structural limitation of the claims (see alignment below between SEQ ID No. 41 of Moyer et al. and the instant application SEQ ID No. 5272).

```
Qy      2041 AATTACTTTTGATGTATTTTCTATTCTCTTTTGTTTTGTTTTGATGTTGATAATAACGAA 2100
             ||| | || | || ||| |    ||||  | || || | |   |  || | ||    |     |
Db      1680 AATAATTTATTATTTATATATAATTCATTATTATTGTCTAATATTGATAATGTAACTTTA 1621

Qy      2101 TTTTCCTTGAAATAAGAAAATCTGTTTCTTTTAAATTTACAATTTTTATTGATAATAACA 2160
             |||||  |    |  | |    | | ||  | |     |||     || |||||   ||||  |
Db      1620 TTTTCTATATTAATACATTTTATTTTATTATATTTTTTTATTTTATTATTATCAATAGTA 1561

Qy      2161 TAATATTCTAAGAAATTATCTTTGTTTAAAAAAATTGGGAAAGAAAAGATTTCAATCTCA 2220
             | ||  |||| ||| |||| || |||    | |  |    | | | |   ||| | | |||
Db      1560 TTATTATCTATTAAAATATCATTTTTTGTTATATATTTAACAAATATTTTTTTTATTTTCA 1501

Qy      2221 TCTCAAAAGAACCTGATAATGACTATTGGATTACCATTATTCCGTTTCTAAAATCTTCTT 2280
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            |||    |   ||   | |||         |    |     |   |||   ||     || ||  |  |  |
Db       1500 TCTTCTATTAATTTAATATAATTAGCTATTTGTGTACAATTTAGTAATAAAGATTTCCAT 1441

Qy       2281 ACTGTTGATTAAAAAAATTAAATCTCCTCTAAAGAAATATCTATCATCTC 2330
                | |   |||   | |  |||    |  ||  ||  |  |   |||    |||   |  ||
Db       1440 TTTTTAAATTTTATATATTTTTTATCTTCGATATCAATTATTATGTTATC 1391
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12. Claims 2 and 60-61 are rejected under 35 U.S.C. 102(b) as being anticipated by GenBank Accession number N37270 (NCBI website last updated 1/5/1998).

With regard to Claims 2, 60, and 61, GenBank Accession number N37270 teaches an Arabidopsis cDNA clone sequence which has at least 60 nucleotides in common and therefore teaches all the structural limitation of the claims (see alignment below between GenBank Accession number N37270 and the instant application SEQ ID No. 5272).

```
Qy       1761 GAAGTGGGCAGCGGAGATTTGAGGAGAGGCTTAGTCTGTAAATTGGGTGTGTGTGTTGAA 1820
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         66 GAAGTGGGCAGCGGAGATTTGAGGAGAGGCTTAGTCTGTAAATTGGGTGTGTGTGTTGAA 7
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Conclusion

13. No claims are allowed.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine Salmon whose telephone number is (571) 272-3316. The examiner can normally be reached on Monday-Friday 8AM-430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine Salmon/
Examiner, Art Unit 1634

/Juliet C Switzer/

Primary Examiner, Art Unit 1634